Statistics-4

Model Exam Question paper - 4

11th Standard

Business Maths

Reg.No. : | | | | | | |

I.Answer all the questions

Time : 01:15:00 Hrs

Total Marks : 60

Part-A

7 x 1 = 7

1) Which one is the measure of central tendency

(a) Range (b) Coefficient of variation (c) Median (d) None of these

2) Arithmetic Mean 2, -2 is

(a) 2 (b) 0 (c) -2 (d) None of these

3) Median for 2, 20, 10, 8, 4 is

(a) 20 (b) 10 (c) 8 (d) None of these

4) Mode is

(a) Most frequent value (b) Middlemost value (c) First value of the series (d) None of these

5) The Geometric mean 0, 2, 8, 10 is

(a) 2 (b) 10 (c) 0 (d) None of these

6) For 'n' individual observation, the Harmonic mean is

(a) $\sqrt{\frac{n}{\Sigma X}}$ (b) $\sqrt{\frac{\frac{n}{1}}{\Sigma \frac{1}{X}}}$ (c) $\frac{n}{\Sigma \frac{1}{X}}$ (d) None of these

7) Which of the following is not a measure of dispersion.

(a) H.M (b) S.D. (c) C.V. (d) None of these

Part-B

1 x 3 = 3

8) A problem is given to three students A, B, C whose chances of solving it are respectively $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$. What is the probability that the problem is solved.

Part-C

10 x 5 = 50

9) In a company there are machines A_1, A_2 and A_3. They produce 20%, 35% and 45% of the total output respectively. Previous experience shows that 2% of the products produced by machines A_1 are defective. Similarly, defective percentage for machine A_2 and A_3 are 3% and 5% are respectively. A product is chosen at random and is found to be defective. Find the probability that it would have been produced by machine A_3.

10) Calculate the arithmetic mean for the following

Marks	20-30	30-40	40-50	50-60	60-70	70-80
No.of Students	5	8	12	15	6	4

11) Calculate the Median weight of persons in an office from the following data.

Weight (in kgs.)	60-62	63-65	66-68	69-71	72-74
No. of Persons	20	113	138	130	19

12) Calculate the mode for the following data

Daily Wages in Rs.	50-60	60-70	70-80	80-90	90-100
No. of workers	35	60	78	110	80

13) Calculate the Harmonic mean for the following data

Size of items	50-60	60-70	70-80	80-90	90-100
No. of items	12	15	22	18	10

14) Calculate range and its coefficient from the following distribution.

Size	20-22	23-25	26-28	29-31	32-34
Number	7	9	19	42	27

15) Let a sample space be $S = \{w_1, w_2, w_3\}$. Which of the following defines probability space on S?

(i) $P(w_1) = 1, \quad P(w_2) = \frac{2}{3}, \quad P(w_3) = \frac{1}{3}$

(ii) $P(w_1) = \frac{2}{3}, \quad P(w_2) = \frac{1}{3}, \quad P(w_3) = -\frac{2}{3}$

(iii) $P(w_1) = 0, \quad P(w_2) = \frac{2}{3}, \quad P(w_3) = \frac{1}{3}$

16) Let P be a probability function on $S = \{w_1, w_2, w_3\}$.

Find $P(w_2)$ if $P(w_1) = \frac{1}{3}$ and $P(w_3) = \frac{1}{2}$

17) A factory has 3 machines A_1, A_2, A_3 producing 1000, 2000, 3000 bolts per day respectively. A_1 produces 1% defectives, A_2 produces 1.5% and A_3 produces 2% defectives. A bolt is chosen at random at the end of a day and found defective. What is the probability that it comes from machine A_1 ?

18) In a bolt factory machines A_1 , A_2 , A_3 manufacture respectively 25%, 35% and 40% of the total output. Of these 5, 4, 2 present are defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine A_2 ?